

APR 27 2007

Docket No.: 03-20 US

REMARKS

This Amendment responds to the final Office Action mailed February 28, 2007, in the above-identified application. The amendments are made in order to place the application in condition for allowance and do not raise new issues or require extensive consideration. Accordingly, entry of the Amendment and allowance of the application are respectfully requested.

Claims 1-18 are currently pending in the application. By this Amendment, independent claims 1 and 9 have been amended. No new matter has been added.

The Examiner has rejected claims 1-18 under 35 U.S.C. § 103(a) as unpatentable over Voss et al. (US 5,786,529) in view of De Simon (US 5,325,708). The rejection is respectfully traversed in view of the amended claims.

Voss discloses a search (trace) gas detector for leak detection instruments, which includes a gas inlet, a vacuum pump and an apparatus by which the presence of the trace gas is recorded (Abstract). Embodiments shown in Figs. 2-4 of Voss each include a gas inlet 2, a chamber 5 and a trace gas recording apparatus 4, which is described as a mass spectrometer. The gas inlet 2 and the mass spectrometer 4 are separately connected to chamber 5. The embodiment of Fig. 4 includes in gas inlet 2 a quartz window 16, which is heatable by means of a heater 17.

De Simon discloses a helium detecting unit including a quartz capillary membrane, a filament for heating the membrane and an ion pump.

Amended claim 1 is directed to apparatus for leak detection comprising a sealable chamber configured to receive and enclose a test piece that, while in the chamber, contains a trace gas, a trace gas permeable member mounted in gas communication with the chamber, and a trace gas sensor comprising an ion pump in gas communication with a permeable member and configured to sense trace gas that passed from the chamber through the permeable member to the trace gas sensor, the sealable chamber being isolated, during leak detection by the ion pump, from gas communication with a vacuum pumping device other than the trace gas sensor and from any inlet to the sealable chamber.

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An apparatus as defined by amended claim 1 is shown by way of example only in Fig. 1 of the present application. Test piece 12 is mounted in sealable chamber 10. The trace gas leaks from test piece 12 into sealable chamber 10, passes through permeable member 30 to ion pump 24, and is detected by ion pump 24. Chamber 10 is sealed during the leak test, except to the extent that the trace gas passes through permeable member 30.

Voss does not disclose or suggest a sealable chamber that is isolated, during leak detection, from gas communication with a vacuum pumping device other than the trace gas sensor and from any inlet to the sealable chamber, as required by amended claim 1. Further, Voss does not disclose or suggest a sealable chamber that is configured to receive and enclose a test piece, as required by amended claim 1. Instead, Voss discloses a chamber 5 that receives a trace gas through gas inlet 2 for detection by mass spectrometer 4. In addition, Voss does not disclose or suggest a trace gas sensor that is configured to sense trace gas that passed from the chamber through the permeable member to the trace gas sensor, as required by amended claim 1. Instead, Voss discloses in Fig. 4 a configuration where the trace gas passes from the gas inlet 2 through quartz window 16 to chamber 5 and then from chamber 5 to mass spectrometer 4. Thus, the trace gas does not pass "from the chamber through the permeable member to the trace gas sensor". While De Simon discloses the use of an ion pump, De Simon does not provide the teachings that are lacking in Voss. For these reasons, amended claim 1 is clearly and patentably distinguished over Voss in view of De Simon, and withdrawal of the rejection is respectfully requested.

Claims 2-8 depend from claim 1 and are patentable over Voss in view of De Simon for at least the same reasons as claim 1.

Amended claim 9 is directed to a method for leak detection comprising providing a sealable chamber configured to receive and enclose a test piece, a trace gas permeable member in gas communication with the chamber and a trace gas sensor comprising an ion pump in gas communication with the permeable member, wherein the sealable chamber is isolated, during leak detection by the ion pump, from gas communication with a vacuum pumping device other than the trace gas sensor and from any inlet to the sealable chamber, placing in the chamber a

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test piece that, while in the chamber, contains a trace gas, passing the trace gas from the chamber through the permeable member to the trace gas sensor, and sensing the trace gas that passed through the permeable member with the trace gas sensor.

As discussed above, Voss does not disclose or suggest a sealable chamber that is configured to receive and enclose a test piece and does not disclose or suggest a sealable chamber that is isolated, during leak detection, from gas communication with a vacuum pumping device other than the trace gas sensor and from any inlet to the sealable chamber, as required by amended claim 9. Further, Voss does not disclose or suggest passing the trace gas from the chamber through the permeable member to the trace gas sensor and sensing the trace gas that passed through the permeable member. De Simon does not provide the teachings that are lacking in Voss. For these reasons and for the reasons discussed above in connection with claim 1, amended claim 9 is clearly and patentably distinguished over Voss in view of De Simon, and withdrawal of the rejection is respectfully requested.

Claims 10-18 depend from claim 9 and are patentable over Voss in view of De Simon for at least the same reasons as claim 9.

CONCLUSION

Based upon the above discussion and amendments, it is believed that claims 1-18 are in condition for allowance. A Notice of Allowance is earnestly solicited. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

Respectfully submitted,



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